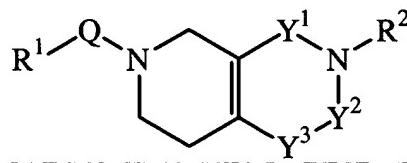


**AMENDMENT TO THE CLAIMS**

The following listing of claims will replace all prior versions, and listings, of claims in the application.

**Listing of claims:****Claim 1 (currently amended).**

A compound of Formula I



or a pharmaceutically acceptable salt thereof, or a pyrido-N-oxide thereof, wherein:

R<sup>1</sup> is independently selected from:

- C<sub>5</sub> or C<sub>6</sub> cycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Substituted C<sub>5</sub> or C<sub>6</sub> cycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- C<sub>8</sub>-C<sub>10</sub> bicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Substituted C<sub>8</sub>-C<sub>10</sub> bicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- 5- or 6-membered heterocycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Substituted 5- or 6-membered heterocycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- 8- to 10-membered heterobicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Substituted 8- to 10-membered heterobicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Substituted phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Substituted naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- 5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Substituted 5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- 8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Substituted 8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);
- Phenyl;

Substituted phenyl;  
Naphthyl;  
Substituted naphthyl;  
5- or 6-membered heteroaryl;  
Substituted 5- or 6-membered heteroaryl;  
8- to 10-membered heterobiaryl; and  
Substituted 8- to 10-membered heterobiaryl;

$R^2$  is independently selected from:

H;  
 $C_1\text{-}C_6$  alkyl;  
Phenyl-( $C_1\text{-}C_8$  alkylenyl);  
Substituted phenyl-( $C_1\text{-}C_8$  alkylenyl);  
Naphthyl-( $C_1\text{-}C_8$  alkylenyl);  
Substituted naphthyl-( $C_1\text{-}C_8$  alkylenyl);  
5- or 6-membered heteroaryl-( $C_1\text{-}C_8$  alkylenyl);  
Substituted 5- or 6-membered heteroaryl-( $C_1\text{-}C_8$  alkylenyl);  
8- to 10-membered heterobiaryl-( $C_1\text{-}C_8$  alkylenyl);  
Substituted 8- to 10-membered heterobiaryl-( $C_1\text{-}C_8$  alkylenyl);  
Phenyl-O-( $C_1\text{-}C_8$  alkylenyl);  
Substituted phenyl-O-( $C_1\text{-}C_8$  alkylenyl);  
Phenyl-S-( $C_1\text{-}C_8$  alkylenyl);  
Substituted phenyl-S-( $C_1\text{-}C_8$  alkylenyl);  
Phenyl-S(O)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);  
Substituted phenyl-S(O)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);  
Phenyl-S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl); and  
Substituted phenyl-S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Each substituted  $R^1$  and  $R^2$  group contains from 1 to 4 substituents, each independently on a carbon or nitrogen atom, independently selected from:

$C_1\text{-}C_6$  alkyl;  
CN;

CF<sub>3</sub>;  
HO;  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-O;  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-S(O)<sub>2</sub>;  
H<sub>2</sub>N;  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-N(H);  
(C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>-N;  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)O-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)O-(1- to 8-membered heteroalkylenyl)<sub>m</sub>;  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)N(H)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)N(H)-(1- to 8-membered heteroalkylenyl)<sub>m</sub>;  
H<sub>2</sub>NS(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-N(H)S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;  
(C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>-NS(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;  
3- to 6-membered heterocycloalkyl-(G)<sub>m</sub>;  
Substituted 3- to 6-membered heterocycloalkyl-(G)<sub>m</sub>;  
5- or 6-membered heteroaryl-(G)<sub>m</sub>;  
Substituted 5- or 6-membered heteroaryl-(G)<sub>m</sub>;  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-S(O)<sub>2</sub>-N(H)-C(O)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>; and  
(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)-N(H)-S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

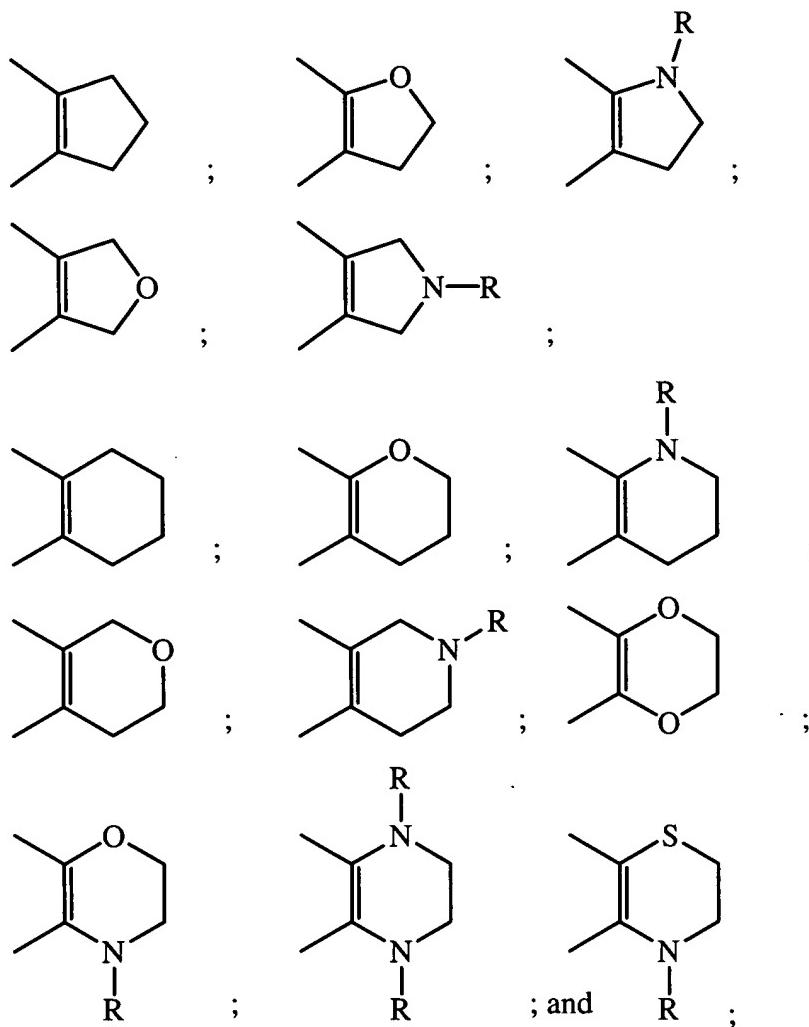
wherein each substituent on a carbon atom may further be independently selected from:

Halo; and

HO<sub>2</sub>C;

wherein 2 substituents may be taken together with a carbon atom to which they are both bonded to form the group C=O;

wherein two adjacent, substantially sp<sup>2</sup> carbon atoms may be taken together with a diradical substituent to form a cyclic diradical selected from:



R is H or C<sub>1</sub>-C<sub>6</sub> alkyl;

G is CH<sub>2</sub>; O, S, S(O); or S(O)<sub>2</sub>;

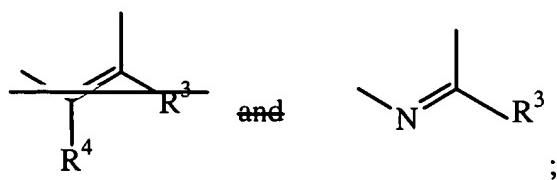
m is an integer of 0 or 1;

Y<sup>1</sup> is CH<sub>2</sub>, C(O), or S(O)<sub>2</sub>;

Y<sup>2</sup> is C(O);

Y<sup>3</sup> is N(R<sup>4</sup>); or

Y<sup>2</sup> and Y<sup>3</sup> may be taken together to form a diradical group selected from:



R<sup>3</sup> is independently selected from the groups:

H;  
CH<sub>3</sub>;  
CH<sub>3</sub>O;  
CH=CH<sub>2</sub>;  
HO;  
CF<sub>3</sub>;  
CN;  
F; and  
Cl;

R<sup>4</sup> is independently selected from the groups:

H;  
CH<sub>3</sub>;  
CH<sub>3</sub>O;  
HO;  
CF<sub>3</sub>; and  
CN; and

wherein R<sup>4</sup> is bonded to a carbon atom, R<sup>4</sup> may further independently be  
halo or CO<sub>2</sub>H;

Q is selected from:

OC(O);  
CH(R<sup>5</sup>)C(O);  
OC(NR<sup>5</sup>);  
CH(R<sup>5</sup>)C(NR<sup>5</sup>);  
N(R<sup>5</sup>)C(O);  
N(R<sup>5</sup>)C(S);  
N(R<sup>5</sup>)C(NR<sup>5</sup>);  
CH<sub>2</sub>N(R<sup>5</sup>);  
SC(O);  
CH(R<sup>5</sup>)C(S);  
SC(NR<sup>5</sup>);

trans-(H)C=C(H);

cis-(H)C=C(H);

C≡C;

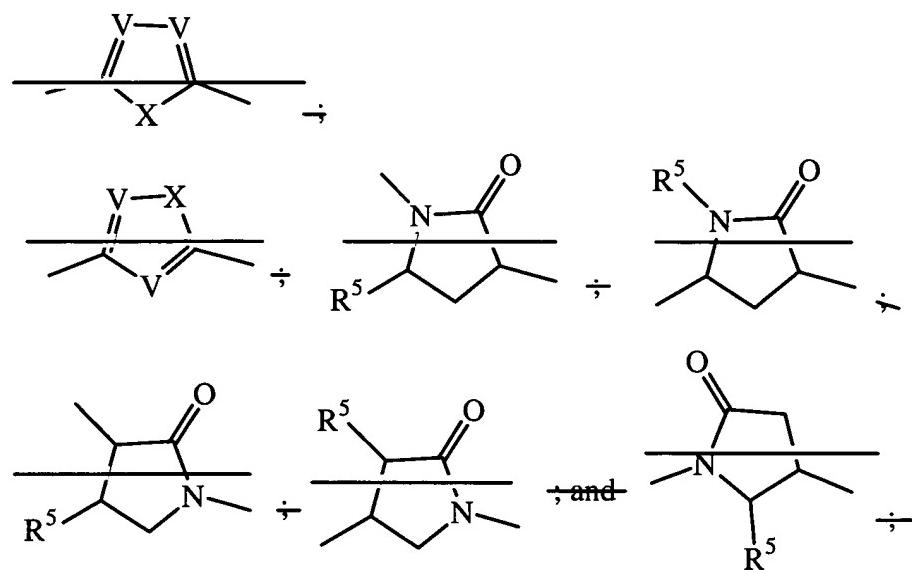
CH<sub>2</sub>C≡C;

C≡CCH<sub>2</sub>;

CF<sub>2</sub>C≡C; and

C≡CCF<sub>2</sub>; and

C≡CC(O);



Each R<sup>5</sup> is independently selected from: H, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>3</sub>-C<sub>6</sub> cycloalkyl; 3- to 6-membered heterocycloalkyl; phenyl; benzyl; and 5- or 6-membered heteroaryl;

X is O, S, N(H), or N(C<sub>1</sub>-C<sub>6</sub> alkyl);

Each V is independently C(H) or N;

wherein "pyrido-N-oxide" means an N-oxide of a 6-membered heteroaryl which contains a pyridinyl radical or an N-oxide of a substituted 6-membered heteroaryl which contains a substituted pyridinyl radical;

wherein each C<sub>8</sub>-C<sub>10</sub> bicycloalkyl is a bicyclic carbocyclic ring that contains 8-, 9-, or 10-member carbon atoms which are 5,5-fused, 6,5-fused, or 6,6-fused bicyclic rings, respectively, and wherein the ring is saturated or optionally contains one carbon-carbon double bond;

wherein each 8- to 10-membered heterobicycloalkyl is a bicyclic ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)<sub>2</sub>, 1 N, 4 N(H), and 4 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and wherein when two O atoms or one O atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond, and wherein the heterobicycloalkyl is a 5,5-fused, 6,5-fused, or 6,6-fused bicyclic ring, respectively,

wherein each heterocycloalkyl is a ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)<sub>2</sub>, 1 N, 4 N(H), and 4 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and wherein when two O atoms or one O atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond;

wherein each 5-membered heteroaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and 4 N, and each 6-membered heteroaryl contains carbon atoms and 1 or 2 heteroatoms independently selected from N, N(H), and N(C<sub>1</sub>-C<sub>6</sub> alkyl), and 5- and 6-membered heteroaryl are monocyclic rings;

wherein each heterobiaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and 4 N, and where the 8-, 9-, and 10-membered heterobiaryl are 5,5-fused, 6,5-fused, and 6,6-fused bicyclic rings, respectively, and wherein at least 1 of the 2 fused rings of a bicyclic ring is aromatic, and wherein when the O and S atoms both are present, the O and S atoms are not bonded to each other;

wherein with any (C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>-N group, the C<sub>1</sub>-C<sub>6</sub> alkyl groups may be optionally taken together with the nitrogen atom to which they are attached to form a 5- or 6-membered heterocycloalkyl; and

wherein each group and each substituent recited above is independently selected.

**Claim 2 (currently amended).** The compound according to Claim 1, or a pharmaceutically acceptable salt thereof, wherein Y<sup>1</sup> is CH<sub>2</sub>-C(=O), or S(O)<sub>2</sub> and Q is N(R<sup>5</sup>)C(O) or C≡C, wherein R<sup>5</sup> is as defined above.

**Claims 3 and 4 (cancelled).**

**Claim 5 (currently amended).** The compound according to any one of Claims 1 to 4 as in Claim 1 or 2, or a pharmaceutically acceptable salt thereof, wherein R<sup>1</sup> is independently selected from:

Phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Substituted phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Substituted 5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl); and

Substituted 8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl); and

R<sup>2</sup> is independently selected from:

Phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted 5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

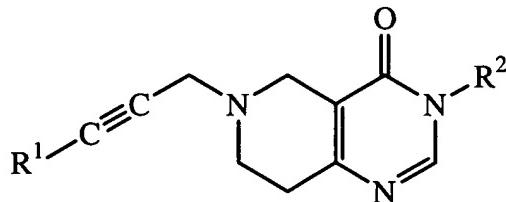
8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>; and

Substituted 8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

wherein m is an integer of 0 or 1; and

wherein each group and each substituent is independently selected.

**Claim 6 (currently amended).** A compound of Formula II



or a pharmaceutically acceptable salt thereof, or a pyrido-N-oxide thereof  
wherein:

R<sup>1</sup> is independently selected from:

C<sub>5</sub> or C<sub>6</sub> cycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Substituted C<sub>5</sub> or C<sub>6</sub> cycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

C<sub>8</sub>-C<sub>10</sub> bicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Substituted C<sub>8</sub>-C<sub>10</sub> bicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

5- or 6-membered heterocycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Substituted 5- or 6-membered heterocycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

8- to 10-membered heterobicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Substituted 8- to 10-membered heterobicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Substituted phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Substituted naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Substituted 5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Substituted 8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylényl);

Phenyl;

Substituted phenyl;

Naphthyl;

Substituted naphthyl;

5- or 6-membered heteroaryl;

Substituted 5- or 6-membered heteroaryl;

8- to 10-membered heterobiaryl; and

Substituted 8- to 10-membered heterobiaryl;

R<sup>2</sup> is independently selected from:

H;

C<sub>1</sub>-C<sub>6</sub> alkyl;

Phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted 5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted 8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Phenyl-O-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Substituted phenyl-O-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Phenyl-S-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Substituted phenyl-S-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Phenyl-S(O)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Substituted phenyl-S(O)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Phenyl-S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl); and

Substituted phenyl-S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Each substituted R<sup>1</sup> and R<sup>2</sup> group contains from 1 to 4 substituents, each independently on a carbon or nitrogen atom, independently selected from:

C<sub>1</sub>-C<sub>6</sub> alkyl;

CN;

CF<sub>3</sub>;

HO;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-O;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-S(O)<sub>2</sub>;

H<sub>2</sub>N;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-N(H);

(C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>-N;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)O-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)O-(1- to 8-membered heteroalkylenyl)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)N(H)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)N(H)-(1- to 8-membered heteroalkylenyl)<sub>m</sub>;

H<sub>2</sub>NS(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

(C<sub>1</sub>-C<sub>6</sub> alkyl)-N(H)S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>-NS(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

3- to 6-membered heterocycloalkyl-(G)<sub>m</sub>;

Substituted 3- to 6-membered heterocycloalkyl-(G)<sub>m</sub>;

5- or 6-membered heteroaryl-(G)<sub>m</sub>;

Substituted 5- or 6-membered heteroaryl-(G)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-S(O)<sub>2</sub>-N(H)-C(O)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

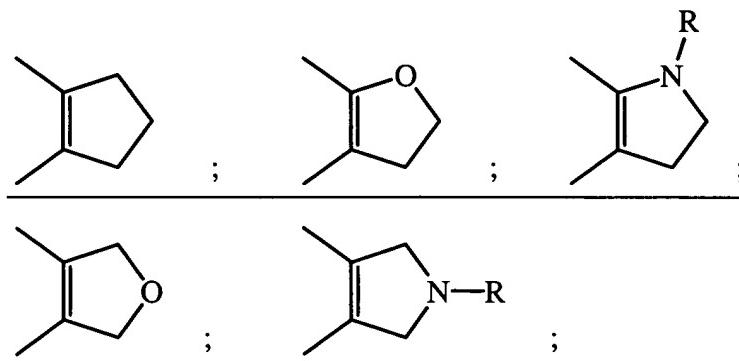
(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)-N(H)-S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

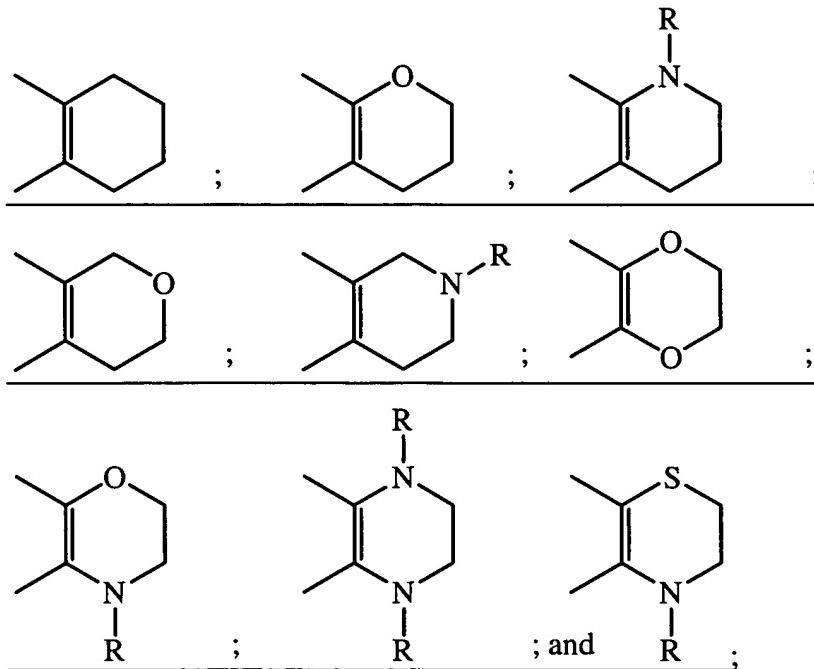
Halo; and

HO<sub>2</sub>C;

wherein 2 substituents may be taken together with a carbon atom to which they are both bonded to form the group C=O;

wherein two adjacent, substantially sp<sup>2</sup> carbon atoms may be taken together with a diradical substituent to form a cyclic diradical selected from:





R is H or C<sub>1</sub>-C<sub>6</sub> alkyl;

G is CH<sub>2</sub>; O, S, S(O); or S(O)<sub>2</sub>;

m is an integer of 0 or 1;

wherein each C<sub>8</sub>-C<sub>10</sub> bicycloalkyl is a bicyclic carbocyclic ring that contains 8-, 9-, or 10-member carbon atoms which are 5,5-fused, 6,5-fused, or 6,6-fused bicyclic rings, respectively, and wherein the ring is saturated or optionally contains one carbon-carbon double bond;

wherein each 8- to 10-membered heterobicycloalkyl is a bicyclic ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)<sub>2</sub>, 1 N, 4 N(H), and 4 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and wherein when two O atoms or one O atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond, and wherein the heterobicycloalkyl is a 5,5-fused, 6,5-fused, or 6,6-fused bicyclic ring, respectively,

wherein each heterocycloalkyl is a ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)<sub>2</sub>, 1 N, 4 N(H), and 4 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and wherein when two O atoms or one O

atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond;  
wherein each 5-membered heteroaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and 4 N, and each 6-membered heteroaryl contains carbon atoms and 1 or 2 heteroatoms independently selected from N, N(H), and N(C<sub>1</sub>-C<sub>6</sub> alkyl), and 5- and 6-membered heteroaryl are monocyclic rings;  
wherein each heterobiaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and 4 N, and where the 8-, 9-, and 10-membered heterobiaryl are 5,5-fused, 6,5-fused, and 6,6-fused bicyclic rings, respectively, and wherein at least 1 of the 2 fused rings of a bicyclic ring is aromatic, and wherein when the O and S atoms both are present, the O and S atoms are not bonded to each other;  
wherein with any (C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>-N group, the C<sub>1</sub>-C<sub>6</sub> alkyl groups may be optionally taken together with the nitrogen atom to which they are attached to form a 5- or 6-membered heterocycloalkyl;  
wherein “pyrido-N-oxide” means an N-oxide of a 6-membered heteroaryl which contains a pyridinyl radical or an N-oxide of a substituted 6-membered heteroaryl which contains a substituted pyridinyl radical; and  
wherein each group and each substituent recited above is independently selected.

**Claim 7 (original).** The compound of Formula II according to Claim 6, selected from:

3-Benzyl-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;  
6-(3-Phenyl-prop-2-ynyl)-3-pyridin-4-ylmethyl-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

4-[4-Oxo-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidin-3-ylmethyl]-benzoic acid;

4-[4-Oxo-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidin-3-ylmethyl]-benzonitrile;

6-(3-Phenyl-prop-2-ynyl)-3-[4-(1H-tetrazol-5-yl)-benzyl]-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

3-Biphenyl-4-ylmethyl-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

6-(3-Phenyl-prop-2-ynyl)-3-(4-pyridin-4-yl-benzyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

3-(4-Furan-3-yl-benzyl)-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

3-(4-Furan-2-yl-benzyl)-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

6-(3-Phenyl-prop-2-ynyl)-3-(4-thiophen-3-yl-benzyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

6-(3-Phenyl-prop-2-ynyl)-3-(4-thiophen-2-yl-benzyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

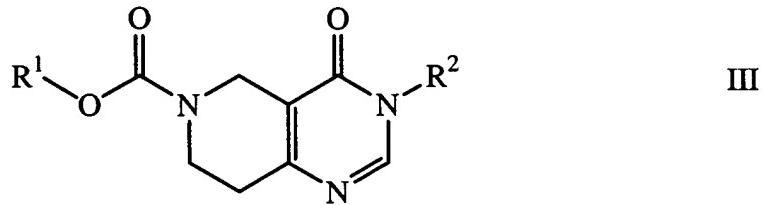
6-(3-Phenyl-prop-2-ynyl)-3-(4-thiophen-3-yl-benzyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

6-(3-Phenyl-prop-2-ynyl)-3-[4-(1H-pyrrol-2-yl)-benzyl]-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one;

3-[4-(1-Methyl-1H-pyrrol-3-yl)-benzyl]-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one; and

3-[4-(1-Methyl-1H-pyrrol-2-yl)-benzyl]-6-(3-phenyl-prop-2-ynyl)-5,6,7,8-tetrahydro-3H-pyrido[4,3-d]pyrimidin-4-one; or

a pharmaceutically acceptable salt thereof.



or a pharmaceutically acceptable salt thereof, or a pyrido-N-oxide thereof

wherein:

R<sup>1</sup> is independently selected from:

C<sub>5</sub> or C<sub>6</sub> cycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Substituted C<sub>5</sub> or C<sub>6</sub> cycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

C<sub>8</sub>-C<sub>10</sub> bicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Substituted C<sub>8</sub>-C<sub>10</sub> bicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

5- or 6-membered heterocycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Substituted 5- or 6-membered heterocycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

8- to 10-membered heterobicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Substituted 8- to 10-membered heterobicycloalkyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Substituted phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Substituted naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Substituted 5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Substituted 8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylene);

Phenyl;

Substituted phenyl;

Naphthyl;

Substituted naphthyl;

5- or 6-membered heteroaryl;

Substituted 5- or 6-membered heteroaryl;

8- to 10-membered heterobiaryl; and

Substituted 8- to 10-membered heterobiaryl;

R<sup>2</sup> is independently selected from:

H;

C<sub>1</sub>-C<sub>6</sub> alkyl;

Phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted phenyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted naphthyl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted 5- or 6-membered heteroaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Substituted 8- to 10-membered heterobiaryl-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)<sub>m</sub>;

Phenyl-O-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Substituted phenyl-O-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Phenyl-S-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Substituted phenyl-S-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Phenyl-S(O)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Substituted phenyl-S(O)-(C<sub>1</sub>-C<sub>8</sub> alkylenyl);

Phenyl-S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl); and

Substituted phenyl-S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkylenyl)

Each substituted R<sup>1</sup> and R<sup>2</sup> group contains from 1 to 4 substituents, each independently on a carbon or nitrogen atom, independently selected from:

C<sub>1</sub>-C<sub>6</sub> alkyl;

CN;

CF<sub>3</sub>;

HO;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-O;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-S(O)<sub>2</sub>;

H<sub>2</sub>N;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-N(H);

(C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>-N;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)O-(C<sub>1</sub>-C<sub>8</sub> alkyleneyl)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)O-(1- to 8-membered heteroalkyleneyl)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)N(H)-(C<sub>1</sub>-C<sub>8</sub> alkyleneyl)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)N(H)-(1- to 8-membered heteroalkyleneyl)<sub>m</sub>;

H<sub>2</sub>NS(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkyleneyl);

(C<sub>1</sub>-C<sub>6</sub> alkyl)-N(H)S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkyleneyl)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>-NS(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkyleneyl)<sub>m</sub>;

3- to 6-membered heterocycloalkyl-(G)<sub>m</sub>;

Substituted 3- to 6-membered heterocycloalkyl-(G)<sub>m</sub>;

5- or 6-membered heteroaryl-(G)<sub>m</sub>;

Substituted 5- or 6-membered heteroaryl-(G)<sub>m</sub>;

(C<sub>1</sub>-C<sub>6</sub> alkyl)-S(O)<sub>2</sub>-N(H)-C(O)-(C<sub>1</sub>-C<sub>8</sub> alkyleneyl)<sub>m</sub>;

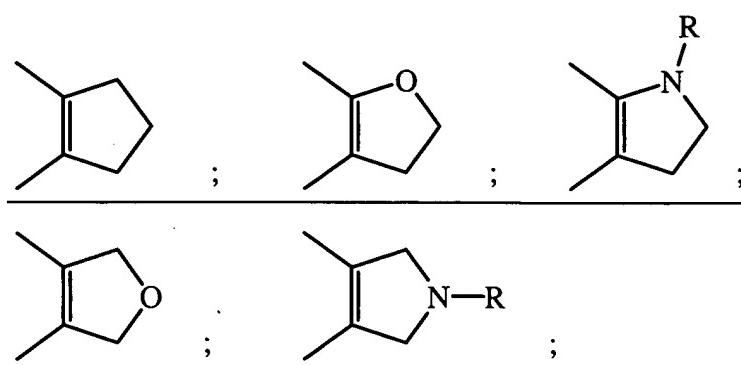
(C<sub>1</sub>-C<sub>6</sub> alkyl)-C(O)-N(H)-S(O)<sub>2</sub>-(C<sub>1</sub>-C<sub>8</sub> alkyleneyl)<sub>m</sub>;

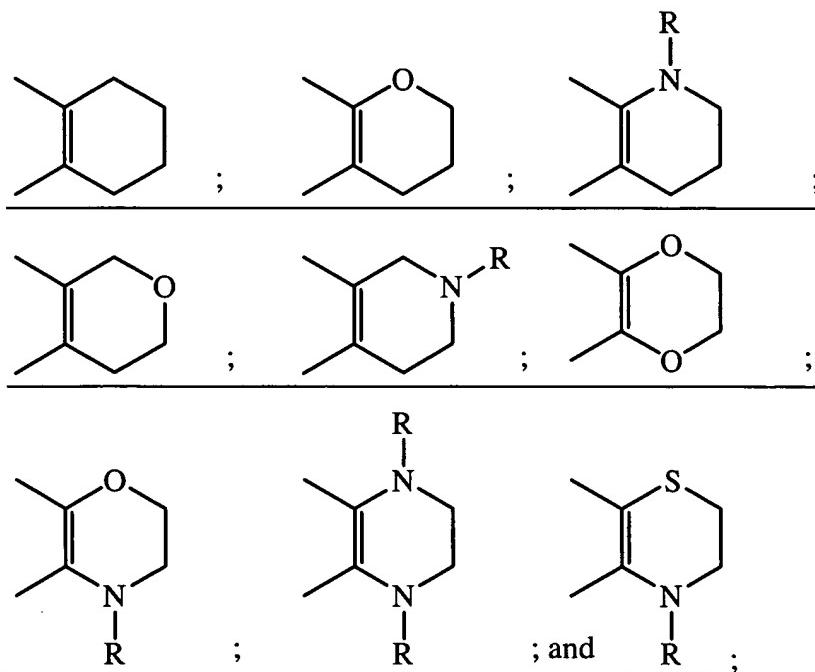
Halo; and

HO<sub>2</sub>C;

wherein 2 substituents may be taken together with a carbon atom to which they are both bonded to form the group C=O;

wherein two adjacent, substantially sp<sup>2</sup> carbon atoms may be taken together with a diradical substituent to form a cyclic diradical selected from:





R is H or C<sub>1</sub>-C<sub>6</sub> alkyl;

G is CH<sub>2</sub>; O, S, S(O); or S(O)<sub>2</sub>;

m is an integer of 0 or 1;

wherein each C<sub>8</sub>-C<sub>10</sub> bicycloalkyl is a bicyclic carbocyclic ring that contains 8-, 9-, or 10-member carbon atoms which are 5,5-fused, 6,5-fused, or 6,6-fused bicyclic rings, respectively, and wherein the ring is saturated or optionally contains one carbon-carbon double bond;

wherein each 8- to 10-membered heterobicycloalkyl is a bicyclic ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)<sub>2</sub>, 1 N, 4 N(H), and 4 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and wherein when two O atoms or one O atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond, and wherein the heterobicycloalkyl is a 5,5-fused, 6,5-fused, or 6,6-fused bicyclic ring, respectively,

wherein each heterocycloalkyl is a ring that contains carbon atoms and from 1 to 4 heteroatoms independently selected from 2 O, 1 S, 1 S(O), 1 S(O)<sub>2</sub>, 1 N, 4 N(H), and 4 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and wherein when two O atoms or one O

atom and one S atom are present, the two O atoms or one O atom and one S atom are not bonded to each other, and wherein the ring is saturated or optionally contains one carbon-carbon or carbon-nitrogen double bond;  
wherein each 5-membered heteroaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and 4 N, and each 6-membered heteroaryl contains carbon atoms and 1 or 2 heteroatoms independently selected from N, N(H), and N(C<sub>1</sub>-C<sub>6</sub> alkyl), and 5- and 6-membered heteroaryl are monocyclic rings;  
wherein each heterobiaryl contains carbon atoms and from 1 to 4 heteroatoms independently selected from 1 O, 1 S, 1 N(H), 1 N(C<sub>1</sub>-C<sub>6</sub> alkyl), and 4 N, and where the 8-, 9-, and 10-membered heterobiaryl are 5,5-fused, 6,5-fused, and 6,6-fused bicyclic rings, respectively, and wherein at least 1 of the 2 fused rings of a bicyclic ring is aromatic, and wherein when the O and S atoms both are present, the O and S atoms are not bonded to each other;  
wherein with any (C<sub>1</sub>-C<sub>6</sub> alkyl)<sub>2</sub>-N group, the C<sub>1</sub>-C<sub>6</sub> alkyl groups may be optionally taken together with the nitrogen atom to which they are attached to form a 5- or 6-membered heterocycloalkyl;  
wherein “pyrido-N-oxide” means an N-oxide of a 6-membered heteroaryl which contains a pyridinyl radical or an N-oxide of a substituted 6-membered heteroaryl which contains a substituted pyridinyl radical; and  
wherein each group and each substituent recited above is independently selected.

**Claim 9 (original).** The compound of Formula III according to Claim 8, selected from:

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid benzyl ester;  
3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid pyridin-4-ylmethyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 2-methoxy-pyridin-4-ylmethyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 3-methoxy-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-methoxy-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-fluoro-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-chloro-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-bromo-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-iodo-benzyl ester;

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-dimethylamino-benzyl ester; and

3-Benzyl-4-oxo-3,5,7,8-tetrahydro-4H-pyrido[4,3-d]pyrimidine-6-carboxylic acid 4-methylsulfanyl-benzyl ester; or

a pharmaceutically acceptable salt thereof.

**Claim 10 (original).** A pharmaceutical composition, comprising a compound according to Claim 1, or a pharmaceutically acceptable salt thereof, admixed with a pharmaceutically acceptable carrier, excipient, or diluent.

**Claim 11 (currently amended).** The pharmaceutical composition according to Claim 10, comprising a compound ~~according to as in~~ Claim 7 or 9, or a pharmaceutically acceptable salt thereof, admixed with a pharmaceutically acceptable carrier, excipient, or diluent.

**Claim 12 (original).** A method for treating arthritis, comprising administering to a patient suffering from an arthritis disease a nontoxic antiarthritic effective amount of a compound according to Claim 1, or a pharmaceutically acceptable salt thereof.

**Claim 13 (original).** The method according to Claim 12, wherein the arthritis is osteoarthritis or rheumatoid arthritis.

**Claim 14 (currently amended).** The method according to Claim 13, wherein the compound according to Claim 1 is a compound ~~according to as in~~ Claim 7 or 9.

**Claim 15 (new).** The compound according to Claim 1, wherein Q is  $\text{CH}(\text{R}^5)\text{C}(\text{O})$ .

**Claim 16 (new).** The compound according to Claim 1, wherein  $\text{R}^1$  is substituted phenyl-( $\text{C}_1\text{-C}_8$  alkylene).